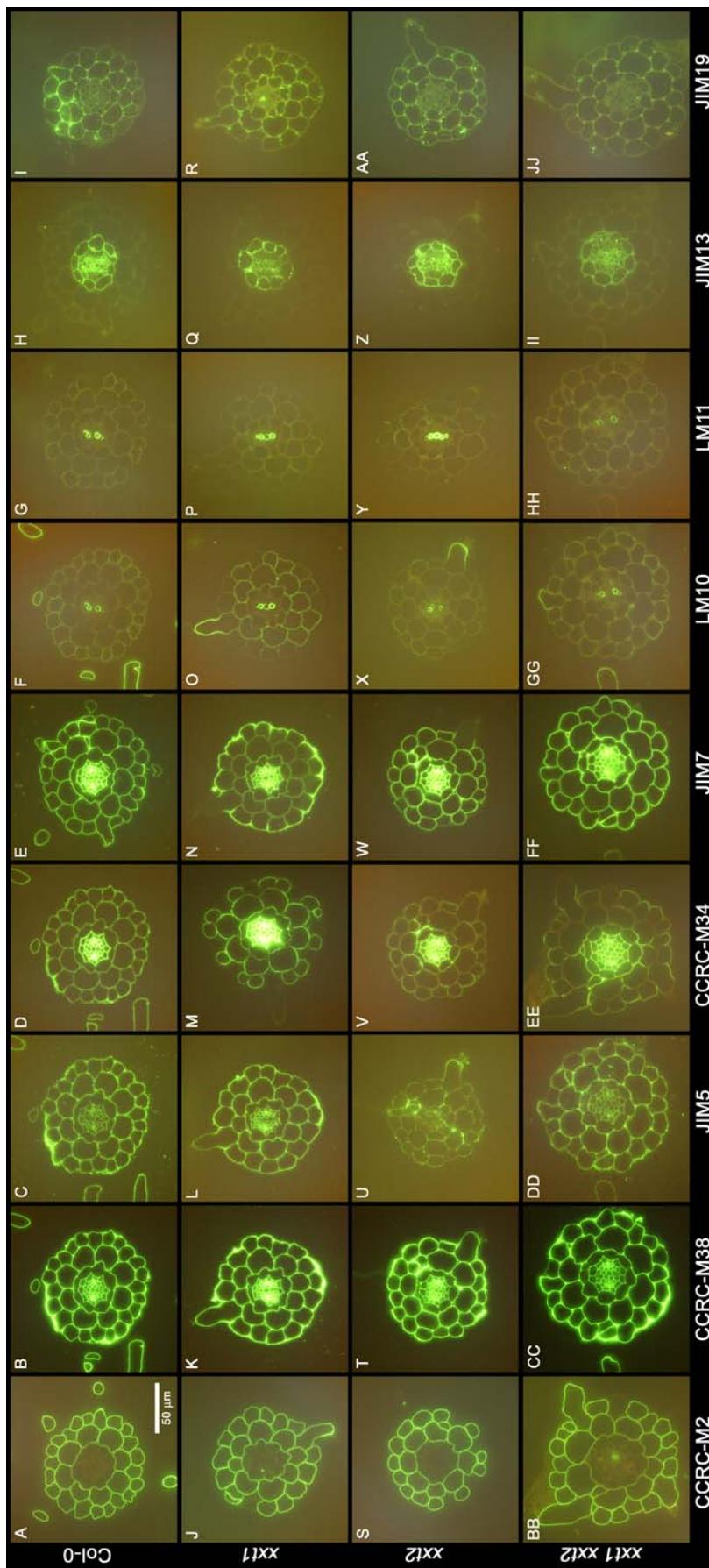


Supplemental Data. Cavalier et al. (2008). Disrupting two *Arabidopsis thaliana* xylosyltransferase genes results in plants deficient in xyloglucan, a major primary cell wall component.



Supplemental Figure 1. Wild-Type and *xxt1 xxt2* Plants.

(A) A comparison of 8-week-old wild-type (Col-0) and *xxt1 xxt2* plants. **(B)** Rosette leaves from wild-type and *xxt1 xxt2* plants.



Supplemental Figure 2. Immunofluorescent Labeling of Wild-Type and Mutant Roots using Non-XyG-Directed Antibodies.

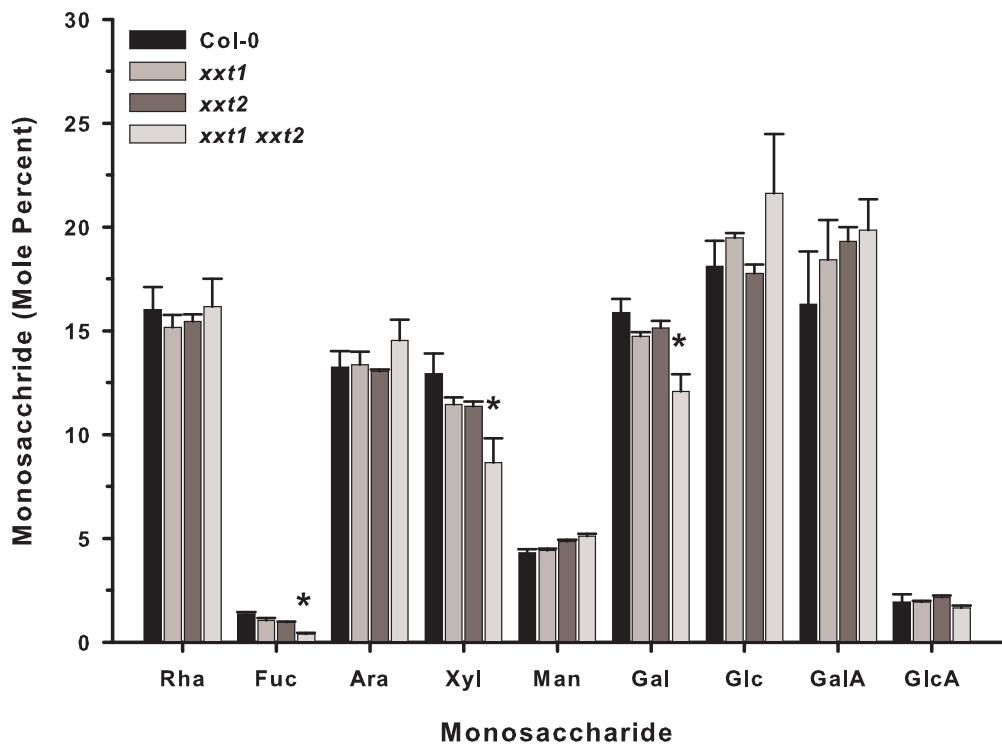
Immunofluorescent labeling of 250 nm transverse sections taken from ~5 mm above the root apex of 4-day-old wild-type (Col-0), *xxt1*, *xxt2*, and *xxt1 xxt2* seedlings. The antibodies used were directed against different epitopes of rhamnogalacturonan I (CCRC-M2), homogalacturonan (CCRC-M34, CCRC-M38, JIM5, and JIM7), xylian (LM10 and LM11), and arabinogalactan (JIM13 and JIM19) and are described in the Methods section.

(A) to (I) Col-0 root cross-sections labeled with CCRC-M2 (A), CCRC-M38 (B), JIM5 (C), CCRC-M34 (D), JIM7 (E), LM10 (F), LM11 (G), JIM13 (H), JIM19 (I).

(J) to (R) *xxt1* single mutant root cross-sections labeled with CCRC-M2 (J), CCRC-M38 (K), JIM5 (L), CCRC-M34 (M), JIM7 (N), LM10 (O), LM11 (P), JIM13 (Q), JIM19 (R).

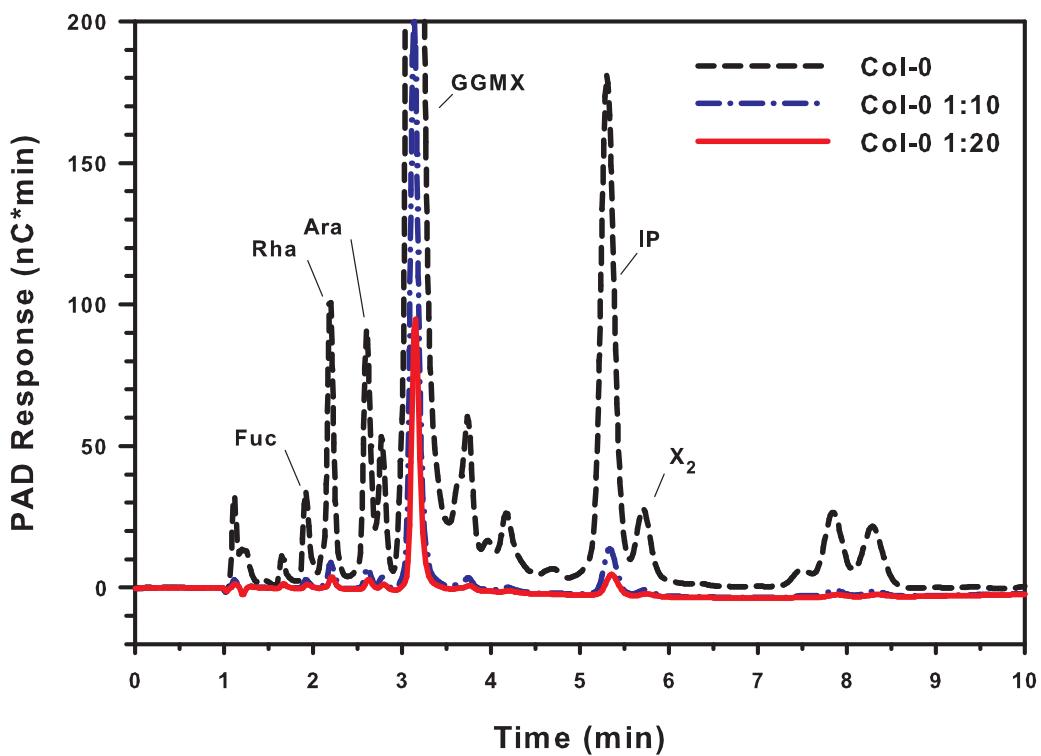
(S) to (AA) *xxt2* single mutant root cross-sections labeled with CCRC-M2 (S), CCRC-M38 (T), JIM5 (U), CCRC-M34 (V), JIM7 (W), LM10 (X), LM11 (Y), JIM13 (Z), JIM19 (AA).

(BB) to (JJ) *xxt1 xxt2* double mutant root cross-sections labeled with CCRC-M2 (BB), CCRC-M38 (CC), JIM5 (DD), CCRC-M34 (EE), JIM7 (FF), LM10 (GG), LM11 (HH),



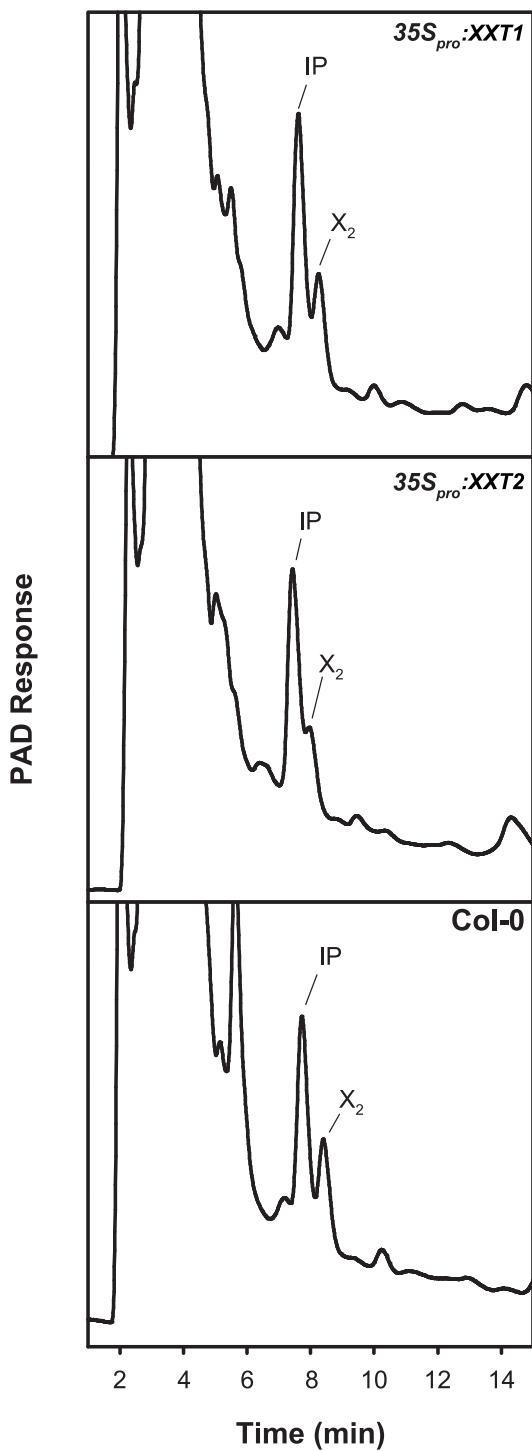
Supplemental Figure 3. Sugar Composition Analysis of T-DNA Insertion Mutants.

Glycosyl residues released by TFA hydrolysis of AIR preparations of wild-type (Col-0) and mutant 7-day-old etiolated seedlings. Data are presented as mean values of mole percent monosaccharides liberated from three biological replications \pm SD. Asterisks denote a statistically significant difference with respect to wild-type ($P < 0.025$). Rha, rhamnose; Fuc, fucose; Ara, arabinose; Xyl, xylose; Man, mannose; Gal, galactose; Glc, glucose; GalA, galacturonic acid, GlcA, glucuronic acid.



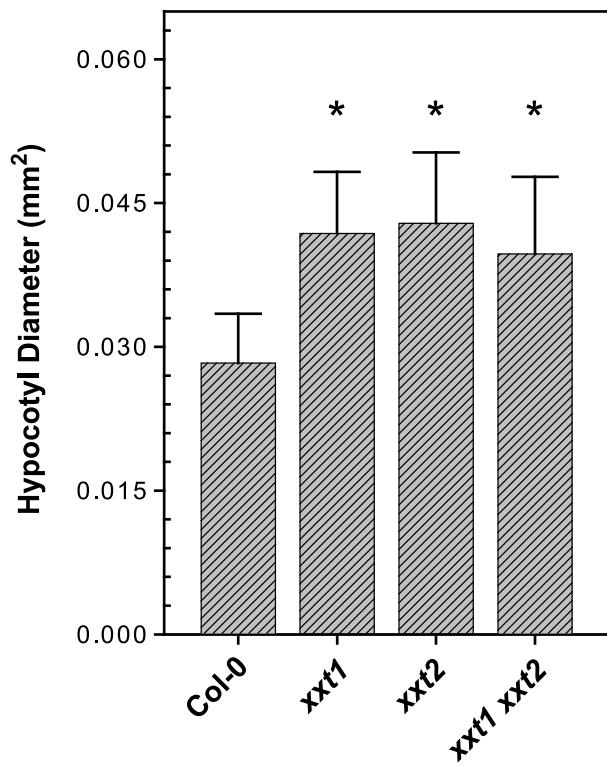
Supplemental Figure 4. HPAEC-PAD Analysis of Dilutions of Wild-Type Driselase-Digested Crude Cell Wall Preparations.

HPAEC-PAD analysis of serial dilutions of wild-type (Col-0) Driselase-susceptible fractions. Fuc, fucose; Rha, rhamnose; Ara, arabinose; GGMX, peak composed of galactose, glucose, mannose, and xylose; IP, isoprimeverose; X₂, xylobiose.



Supplemental Figure 5. HPAEC-PAD Analysis of Driselase-Digested Crude Cell Wall Preparations from Wild-Type and *xxt1 xxt2* Double Mutant Plants Complemented with either 35S_{pro}:XXT1 or 35S_{pro}:XXT2.

Representative chromatographs from HPAEC-PAD analysis of isoprimeverose (IP) released by Driselase from crude cell wall preparations of individual 7-day-old seedlings of wild-type (Col-0; bottom panel) and *xxt1 xxt2* double mutants (T2 generation) complemented with either 35S_{pro}:XXT1 (top panel) or 35S_{pro}:XXT2 (middle panel). X₂, xylobiose.



Supplemental Figure 6. Hypocotyl Cross-Section Area of T-DNA Insertion Mutants.

Hypocotyl cross-section area (mm²) of 4-day-old etiolated hypocotyls of wild-type (Col-0; n = 217), *xxt1* (n = 96), *xxt2* (n = 51), and *xxt1 xxt2* (n = 59) T-DNA insertion mutants. Asterisk denotes statistically significant difference with respect to wild-type (P < 0.001). Error bars ±SD.

Supplemental Table 1. Xyloglucan-directed antibodies used in this study.

Antibody Name	Immunogen
CCRC-M1	Sycamore rhamnogalacturonan I
CCRC-M39	Maize xylan
CCRC-M48	Tamarind seed xyloglucan
CCRC-M49	Tamarind seed xyloglucan
CCRC-M50	Tamarind seed xyloglucan
CCRC-M51	Tamarind seed xyloglucan
CCRC-M52	Tamarind seed xyloglucan
CCRC-M53	Tamarind seed xyloglucan
CCRC-M54	Tamarind seed xyloglucan
CCRC-M55	Tamarind seed xyloglucan
CCRC-M57	Tamarind seed xyloglucan
CCRC-M58	Tamarind seed xyloglucan
CCRC-M86	Tomato cell suspension xyloglucan
CCRC-M87	Tomato cell suspension xyloglucan
CCRC-M88	Tomato cell suspension xyloglucan
CCRC-M89	Tomato cell suspension xyloglucan
CCRC-M90	Tomato cell suspension xyloglucan
CCRC-M93	Tomato cell suspension xyloglucan
CCRC-M95	Tomato cell suspension xyloglucan
CCRC-M96	Tomato cell suspension xyloglucan
CCRC-M99	Tomato cell suspension xyloglucan
CCRC-M100	Sycamore cell suspension xyloglucan

Supplemental Table 2. Primer sequences used for genetic analysis and complementation.

Target	Primer ID	Primer Sequence
<i>xxt1</i> SAIL_785-E02	LP1	GAAATCTCGAGACCGGACTAATAAACCT
	RP1	ATCCCCAATAACCGTGCAAGTAATAAC
<i>xxt2</i> SALK_101308	LP2	CCAAAGAGCTTACGCCAAT
	RP2	CGCTTGTAGGTCCGATGAA
SAIL T-DNA	LB ₃	TAGCATCTGAATTCTATAACCAATCTCGATACAC
SALK T-DNA	LBb1	GC GTGGACCGCTT GCTGCAACT
<i>XXT5</i>	-	GATGAGCCTCAGGAAGGTGA
	-	CATCACGAATTGCCCTTTA
UBQ10	-	GATCTTGCCGGAAAACAATTGGAGGATGGT
	-	CGACTTGT CATTAGAAAGAAAGAGATAACAGG
<i>XXT1</i> Coding Sequence	-	CACCATGATAGAGAAGTCTATAGGAGCGCA
	-	CGCAAAATTAAAAGATAACAAACAA
<i>XXT2</i> Coding Sequence	-	CACCATGATTGAGAGGTGTTAGGAGCTTA
	-	CCTAAACGCAAAACCGATT